REMARKS

Claims 1-5 are pending. Claim 1 is herein amended.

Foreign Priority - 35 U.S.C. § 119(a)-(d)

Applicants claim for foreign priority under 35 U.S.C. § 119 was acknowledged on page 2 of the Office Action. Applicants request that the Office Action Summary also indicate acknowledgement of the claim for foreign priority and that the priority document has been received.

Claim Rejections - 35 U.S.C. § 102

Claims 1-5 were rejected under 35 U.S.C. § 102(b) as being anticipated by ***Hamrock*** (U.S. Patent No. 6,063,522). Favorable reconsideration is requested.

The present invention as recited in amended claim 1 is a lithium cell comprising a positive electrode, a negative electrode having lithium, and a separator interposed between the positive and negative electrodes. The separator comprises a non-aqueous electrolytic solution. The solvent in the solution is one or more compounds represented by general formula (1) (see claim 1). The one or more compound represented by general formula (1) is 90-100% in volume of the solvent. As recited in amended claim 1, the separator has a melting point of higher than 185 °C. The amendment is supported in the Specification at page 18, lines 7-10.

Hamrock discloses use of diethylene glycol dimethyl ether (a compound represented by general formula (1) where both X and Y are methyl groups and n = 2). The separator used in the reference is polypropylene, the melting point of which is 173 °C.

Applicants respectfully submit that *Hamrock* does not disclose or suggest that "the separator has a melting point of higher than 185°C" as recited in amended claim 1.

Hamrock discloses using a polypropylene separator. (Col. 14, lines 59-63.) The polypropylene separator has a melting point of 173 °C. (http://www.polymerprocessing.com/polymers/PP.html.) As shown in the present Specification, use of a material with a melting point of 185°C or lower for the separator such as polypropylene (PP), as disclosed in *Hamrock*, results in cell abnormality in high temperature preservation tests and reflow resistance tests. (*See* Table 1; page 13, line 24 to page 14, line 3.)

The separator used in Applicants' examples is polyphenylene sulphide ("PPS"). (*See* Specification, page 7, line 19.) The melting point of PPS is specified as approximately 280°C in the specification at page 8, line 3, and as 285°C at PolymerProcessing.com (http://www.polymerprocessing.com/polymers/PPS.html).

Since *Hamrock* does not disclose or suggest using a separator having a melting point of higher than 185 °C, *Hamrock* does not disclose or suggest the elements as recited in amended claim 1.

Applicants also respectfully submit that *Hamrock* does not disclose "the main component being 90% to 100% in volume of the non-aqueous solvent" as recited in amended claim 1.

In the specific examples, *Hamrock* discloses that the non-aqueous solvent includes propylene carbonate ("PC") and dimethoxy ethane ("DME") mixed at a volume ratio of 50:50. Note that DME is a compound represented by formula (1) where n = 1 which does not meet the

requirements of the claims (claim 1 requires that n = 2 or 3). Moreover, note that none of the specific examples in *Hamrock* disclose using DGM or any other compounds represented by formula 1 and where n equals 2 or 3. However, even assuming that the specific examples disclose a main component complying with the requirements of claim 1, the 50% main component, as disclosed in *Hamrock*, is well below the 90% to 100% of main component in the solvent as required by claim 1.

The Examiner cites *Hamrock* at col. 14, lines 10-12 for teaching that mixtures of matrix materials can be tailored to provide optimum performance. (Office Action, page 2.) However, as stated above, *Hamrock* does not teach or suggest that the solvent is 90% to 100% by volume of the main component. *Hamrock* specifically discloses using only 50% of the main component.

In the present invention, using a volume ratio of the compound represented by general formula (1) as higher than or equal to 90% and lower than or equal to 100% produces a cell that has no abnormality in high temperature preservation tests and reflow resistance tests, restricts cell swelling in reflow resistance tests to 0.15%-1.40%, and excels in discharging characteristics such that the relative discharging capacity is 82-103%. (*See* Table 2.) As can be seen from Table 2, poor results are obtained when the main component is as low as 70% in the solvent. (Comparative Example 5.)

In addition, the present specification describes the results of using DME alone (comparative example 1) and the use of PC alone (comparative example 2). Both of these examples show cell abnormality in high temperature preservation tests and reflow resistance

tests. (Specification, page 12, line 15 to page 13, line 14.) Obviously, use of a solvent having PC and DME mixed at a volume ratio of 50:50, as disclosed in *Hamrock*, would likewise result in cell abnormality in high temperature preservation tests and reflow resistance tests.

Hamrock does not disclose or suggest using a main component in the range of 90% to 100% by volume in the solvent. Thus *Hamrock* does not disclose the elements as recited in amended claim 1.

Claims 2-5 depend from claim 1, thus for at least the foregoing reasons, these claims are patentable over *Hamrock.*

Accordingly, withdrawal of the rejection of claims 1-5 is hereby solicited.

Double Patenting Rejection

Claims 1-3 were provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 4-6 of copending Applications No 10/787,749 and 10/785,970. Applicants will address this rejection after rejections on other grounds have been withdrawn.

In view of the aforementioned amendments and accompanying remarks, Applicants submit that that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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